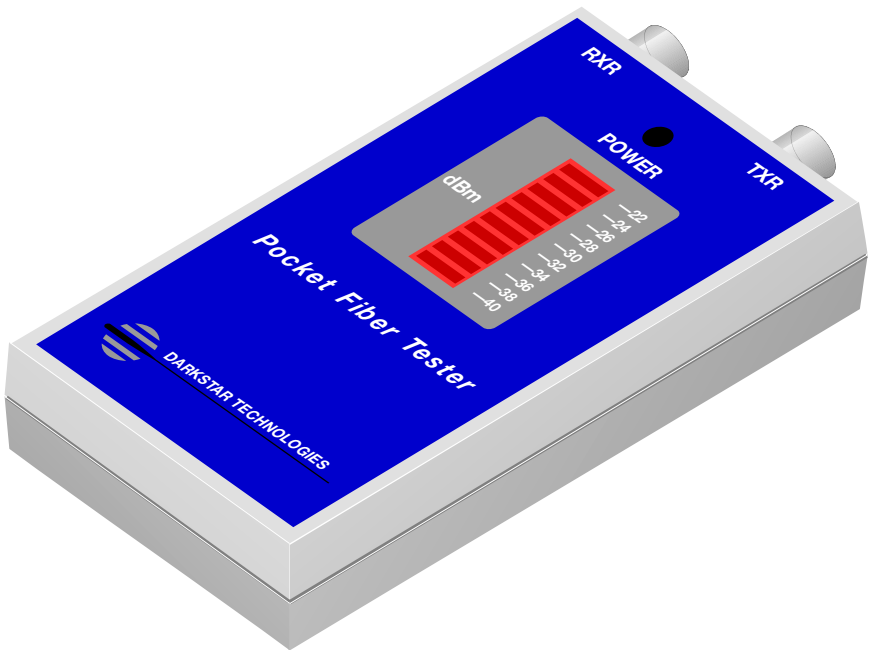


D400 SERIES

Pocket Fiber Testers

GUIDE TO OPERATION



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Features

The Pocket Fiber Testers are simple, low-cost solutions for checking multimode fiber optic communications cables and connections. They are easy to use and small enough to fit in a shirt pocket or tool kit.

Test cables before and after installation with the easy-to-read bar graph indicator. The readout is a measure of absolute optical power labeled in -2 dBm steps.

The units are available with ST or SC connectors. The fiber checker frees up more costly test equipment when you just need a quick operational test. The D410 is both the fiber light source and power meter built together. It can be used by itself, looping both ends of the fiber cable into the unit, such as checking a spool or an un-installed fiber cable. For installed fiber or long runs, the D410 can be used in tandem with the D420 to provide a remote light source and use the D410 as the power meter only. Alternatively, the D420 and D430 are separated light source and power meter, respectively and are used together at opposite ends of the fiber optic cable.

Model D410 ST Fiber Tester, receiver and source in one

Model D420 ST source only, 850 nm

Model D430 ST receiver only

Model D440 SC Fiber Tester, receiver and source in one

Operation

To use the Pocket Fiber Tester, remove the protective covers from the fiber connectors. Join your fiber to the tester and turn it on using the slide-switch on the side.

The tester's bar graph indicator gives you an absolute measurement of the optical power coming into the its receiver. This means that in order to estimate the LOSS IN YOUR FIBER, you need to know how much power is being launched by the tester and then subtract the power being received back. The following chart will help you to determine the power launched as well as to make dBm-to-microWatts conversions. The transmitter is calibrated to 10 microWatts (-20 dBm).

-20 dBm launched into 100u core fiber

-23 dBm launched into 62.5u core fiber

-26 dBm launched into 50u core fiber

-22 dBm = 6.3 microWatts

-24 dBm = 4.0 microWatts

-26 dBm = 2.5 microWatts

-28 dBm = 1.6 microWatts

-30 dBm = 1.0 microWatts
-32 dBm = 0.6 microWatts
-34 dBm = 0.4 microWatts
-36 dBm = 0.3 microWatts
-38 dBm = 0.2 microWatts
-40 dBm = 0.1 microWatts

The power output of the transmit led is -20 dBm at 850 nm so you can quickly find the TOTAL POWER LOSS by subtracting the bar graph reading. For example, if the receiver indicates -30 dBm, then you would subtract -30 from -20.

$$-20 \text{ dBm} - (-30 \text{ dBm}) = 10 \text{ dBm loss}$$

Remember, the light intensity is directly affected by connector alignment, end polish, light-tightness etc. along the path of the fiber. Before making measurements, calculate the loss you expect to get in your fiber.

The scale on the bar graph is calibrated in -2 dBm steps and the range is from -22 dBm to -40 dBm. This means that the highest bar that is lit gives you an approximate measure of the optical power being received. For example, if all the bars are lit up to and including the “-28” bar, then the received power is at least -28 dBm but less than -26 dBm.

Note: The testers are designed to give you an APPROXIMATE value for making continuity checks and testing for damaged cables. If precise measurements are required, contact your distributor for more information on Optical Power Meters or Optical Time-Domain Reflectometers.

Note : If the power led is dim or won't light, it may be time to replace your battery. You can check this by simply pointing the tester at a light source and verifying that the bar graph lights up all the way as you approach the light. Another test is to connect a short piece of “known good” 100 micron fiber between the transmitter and receiver. This should also yield a “full scale” reading on the bar graph. If not, then try replacing the 9-volt alkaline battery.

Applications

If you have easy access to both ends of a terminated fiber, you can test it by simply looping it across the tester's receiver (RXR) and transmitter (TXR) connectors.

If you are trying to use only the receiver to test a fiber that has data on it, you may or may not get a useful reading. The receiver is calibrated to work with the D400 Series transmitter which sends out -20 dBm of unmodulated light at 850 nm.

A pair of testers can be used to check duplex fibers or fibers that are already installed. Obviously, you may need a second person at the other end to help you.

Specifications

Output Wavelength	850 nm +/- 20 nm at 3 dBm down
Optical Power Out	-20 dBm +/- 0.5 dBm into 100u core -23 dBm +/- 1.0 dBm into 62.5u core -26 dBm +/- 1.0 dBm into 50u core
Indicator Range	-22 dBm to -40 dBm
Indicator Resolution	-2 dBm
Power Requirement	standard 9-volt alkaline battery
Unit Size	4.5 X 2.3 X 1.0 inches 11.5 X 5.9 X 2.6 centimeters
Unit Weight	0.28 lb / 0.13 kg
Operating Temperature	0 to 45 degrees centigrade non-condensing

Technical Assistance

Customer support is obtained through the distributor from which you purchased your tester. If you still have problems or cannot locate your distributor, you may reach us via fax at (765) 775-4073 or via our website at www.darkstar.crowecorp.com/

Warranty

Darkstar Technologies warrants its products against defects in materials or workmanship for a period of one year from the date of purchase. Any product that is returned shipping prepaid will be inspected and tested, and items meeting warranty conditions will be repaired or replaced free of charge. Please contact your distributor if repair or replacement is required.

